The claims defining the invention are as follows :

1 A turbine or rotor that consists of a central hub or shaft rotatable about an axis generally parallel to a fluid or gas flow supporting a plurarity of integrally formed blade / vane units radially arranged around the said hub or shaft that each comprises of substansially outwardly extending blade or " wing " sections preferably having a slight rearward inclination (0 - 45 deg) towards the gas / fluid flow exit direction , a flat , convex or most preferably an airfoil shaped surface generally facing towards the rotation direction normal to gas / fluid flow exit direction , supporting and integrally formed with on its most outer frontward extremities , a substansially frontwardly (leading into the incoming flow) projecting " vane" of pronounced length and preferably a diminishing convex or " airfoil shaped " surface generally normal to the resultant gas / fluid flow as well as generally facing the direction of rotation with the complete blade / vane unit being set onto the hub / shaft section with a helix or pitch angle formed between the outer blade / vane extremities and the said hub or shaft axis enabling lift or deflection forces formed by the said gas / fluid flow past the blade / vanes to revolve the turbine or rotor about its central axis .

2 A turbine or rotor as claimed in claim 1 that always has the frontwardly projecting outer vane section . of the same or longer length (measured from its outer tip to the centroid of area of the complete integral blade/ vane unit) than the length of the inner blade section from the same said centroid so that the outwardly exitting flow area or area of voids between its outer vanes periphally is always more than one third of the total exitting gas / fluid flow area.

3. A turbine or rotor that has its integral blade / vane units balanced within usefullness given the application , both in weight distribution about a central line passing through their centroid perpendicular to the hub / shaft axis and also the sum of moment or twist forces formed by lift or deflection forces about either side of the same said central line equal unless an unbalanced situation is desired to come into effect above a given flow velocity thereby giving rise to vane / blade flex and thus , maximum rotational speed control .

4. A turbine or rotor with the majority of cross sectional profiles of each specific cross sectional area of its integral blade and vane units as claimed in claim 1 preferably set at an angle of incedence of between 0 and 35 degrees and most preferably always between 0 and 15 degrees from the resultant gas / fluid flow past that same specific area irrespective of their cross sections or dimensions at the same specific area .

5. A turbine or rotor with its integral " blades / vanes" as in claim 1 radially displaced around a hub or shaft in a permanently fixed helix or pitch angle that produces lift or deflection forces of the said blade / vanes generally towards the direction of rotation upon gas / fluid flows through the turbine or rotor whether or not that incoming flow has been given a helical path by preceding stationary vanes or rotating rotors , unless able to be articulated about their individual mounting point central lines onto the hub / shaft to such an extent as to enable ultimate " speed limiting " or benefitting " start - up " conditions when loaded .

6. A turbine or rotor with blades and vanes as claimed in claim 1 that may or may not contain there- in one or more narrow " slots" that have at their respective rearward exits a smooth curve , radius or air -foil section also having its own incedance angle to flow , in an effort to add to the maximum " lift " forces in the vicinity of the specific areas of the vane / blades where they are situated and those slots are preferably orientated normal to the gas / fluid flow past the same area that they are located in .

7. A rotor as claimed in claim 1 that has on its blade / vane units as described in claims 1 to 4 a convex or air foil surface generally facing opposite the direction of rotation and opposite or negative angles of incedance through-out its various sections as claimed in claim 4 , such that when a torque is applied in the direction of rotation as claimed in claim 1 , a gas / fluid flow may be imparted in the outwardly and rearward direction , irrespective of the number , pitch angles or direction of rotation of the various stages .

8. A turbine or rotor as claimed in claim 1 that has the greatest proportion of its blade blade / vane surface area situated between 0.3 - 0.45 of the diameter radially from the central axis of rotation

9. A turbine or rotor as claimed in claim 1 that may be used in an inline or multyple axial multy - rotor turbine arrangements where the rotors may not necessarily revolve on the same shaft , hub or in the same direction .

10. A turbine or rotor as claimed in claims 1 through to 9 that may have its integral blade / vane units constructed of solid , partially solid or hollow , airfoil , flat , concave or convex cross sections with any number or mixture of these provided they still fullfill the aero dynamic forces and mass distribution requirments as claimed in claim 3.

11. A turbine or rotor as claimed in claims 1 through to 10 that may be constructed of metals steel , alloys , composites , plastics , resins , laminates , organic materials , timbers with any combination of these , using any number of any of the following methods :

Laminated ,cavity moulded , injection moulded , roto moulded ,vacuum formed , pressed , cut, cast, inserted, blown , sinted , forged, bolted , rivetted , welded , fabricated , glued , ultra sonically joined or machined , either as one complete unit or as assembled from a number or pieces .

12. A fan or rotor as herein before described with references to Figures 1 - 7 of the accompaning drawings.

Frank Daniel Lotrionte 11 th March - 2005

AMENDED CLAIMS

[received by the International Bureau on 13 June 2005 (13.06.05),
original claims 1 to 12 replaced by new claims 1 to 9 (2 pages)]

1. A turbine or rotor that essentially consists of a plurality of relatively long curved vanes or " wing sections " of a curved or " airfoil " cross sectional profile circumferentially arranged around a hub or shaft having its central axis substansially parallel to the incoming gas / fluid flow with each of the said vanes having its longitudal sides tangentially intersecting forming a tip at both its ends and these two most extreme tips predominately representing the true leading and trailing edges in relation the apparent gas or fluid flow direction during rotation at the desired tip speed ratio as these said tips are both orientated to form an angle of between 0 and 36 degrees to the said apparent flow with the said longitudal sides oriented at an angle to the said relative flow direction and each of the said vanes substansially projecting from the frontward outer end of a secondary inner section or blade that connects it to the said hub or shaft providing support for the said outer sections whilst imparting minimal drag or blockage effects upopn the gas / fluid flow
the complete rotating outer section, inner section , hub / shaft assembly forming a substansial circular " void " within the turbine or rotor inner frontward area.

2. A turbine or rotor as described in claim 1 that has the greatest proportion of its vane / blade surface area situated between 0.33 - 0.46 of its diameter radially from the central axis of rotation .

3. A turbine or rotor as described in claim 1 that has its inner blade or support sections being of a width less than half of the length of the outer vane sections , and may in the most basic embodiment be made in the form of a shaft protruding downwards from the centroid of area of the vane / blade sections , perpendicular to the shaft / hub axis as the vane / blade sections may be integrally formed and susbstansially balanced , both in mass distribution and the sum of moments or twist forces due to lift / deflection forces , about a central line passing through the said centroid of area , also coinciding with the said shaft centerline.

4. A turbine or rotor as described in claim 1 that does not need to have its substansially forwardly cantilevered outer vane sections balanced or solely supported by a wide inner blade (or support section) because of the addition of a narrow annular rim fixed to the outer , most frontward extremity of all the outer vane sections providing additional rigidity by unifying the structure.

5. A turbine or rotor as described in claim 1 with its outer vane / inner sections radially displaced around a hub or shaft in helix or pitch angle that can be varied through vane articulation mechanisms built into the hub or by allowing vane / blade flexing due to stresses above a given velocity to alter vane attack angle , all being useful at providing speed variation , ultimate speed limiting or benifitting start up / shut down conditions .

6. A turbine or rotor as described in claim 1 to 5 that has stationary deflective vanes or a smaller rotor rotating in the opposite direction to itself , generally located within the inner void formed at its entrance such that the incoming gas / fluid flow is given a helical path in the opposite opposite hand to the apparent gas / fluid flow outwardly and / or rearwardly so as to maximize the percentage of lift forces developed by the vanes converted into actual torque at the shaft and not wasted as rearward thrust at the bearings in the case of a turbine , or to maximize actual total thrust developed in the case of a propulsion rotor because the gas fluid flow may be made to exit with little if any apparent helix angle .

7. A turbine or rotor as described in claim 1 with outer vane sections that contain within their rearward extremities one or more narrow slots orientated at an obtuse angle in relation to the axis of rotation and generally converging towards the rear turbine or rotor central axis , that have at their respective outer trailing exits , a radius or curvature forming another minor " airfoil " section also having its own angle of incedence to the said apparent gas / fluid flow adding to the maximum lift forces developed in that rearward part of the vane helping it to counteract or balance twisting effects caused by the incorporation of extraordinarily pronounced " leading tips "

8. A turbine or rotor as described in claim 1 to 6 that may be utilized to operate within a duct , column , passage or enclosure and may even include the reticulation of a fluid through the turbine exitting into a chamber or passage that directs the fluid back around to the front entrance of a propulsion rotor located substansially within the " inner void " formed at the entrance of the said turbine such that the complete unit may operate as a fluid driven coupling or transmission , with speed variation also possible with the inclusion of turbine pitch or attack angle adjustment through vane articulation as described in claim 5 .

9. A turbine or rotor as herein before described with references to Figures 1 - 7 of the accompaning drawings.

Frank Daniel Lotrionte 4 th June - 2005

STATEMENT UNDER ARTICLE 19 (1)

In reference to International application number ; PCT / AU2005000356

International filing date : 16 March 2005

Applicant : Frank Daniel Lotrionte

Referring to the filed invention named Turbine and Rotor Therefor their has been poorly worded and described claims stated which has allowed the invention to be viewed as lacking novelty .

What is claimed to be new and novel had been overlooked due to my poor description in this filed application and has not changed since the filing of the very first provisional application and such I do not seek to essentially change the drawings or figures already filed.

What is clamed to be novel is essentially and primarily that any relative gas or fluid flow (or the flow direction considered to be the total sum of the inward flow vector , the apparent flow vector due to rotation of the vanes or blades and any radially outward flow vector if present , " meets a tip in the first instance , not an edge" and lastly ," exits past another tip on the same vane , not an edge " such that the working surface area of the vanes is quite long in respect to its width and closely oriented to this stated relative gas / fluid flow whilst revolving , not the incoming flow direction alone , vaguely in similar fashion to a ship hull being raised out of the water at speed

Also , I have made a mistaken claim of describing the inner blade or supporting section as having a slight rearward tilt , but this is not necessarily true and I seek to amend this claim it may appear so when viewed perpendicular to the stated apparent flow whilst revolving and not when viewed perpendicular or " side -on" to the central hub or shaft axis

with the possible exception of being viewed whilst in its abnormal " start - up" or " shut down" mode due to exceptional vane articulation and in reality the inner section generally will have a zero to slight frontward tilt towards the turbine or rotor entrance as its centerline of mass is perpendicular , and some of the simple drawings and descriptions will be corrected accordingly at a later date only in this regard .

The remainder of amended claims are only meant to only further describe the preferred proportions , state novel applications and design principles for for this invention

Yours sincerely

Frank D Lotrionte
70 Dandelion Drive
Rowville 3178
Victoria Australia